REMARKS

Claims 1-6, 8-24, 26-40, 42-52 and 53-67 are pending in the present application.

In the above amendments, claims 43-46 have been amended. The amendments to claims 43-46 correct grammatical inconsistencies related to the function of the data rate generator. It is submitted that these amendments introduce no new matter within the meaning of 35 U.S.C. §132.

In the outstanding Office Action, claims 1-2, 10-14, 21, 26-31, 38, 43, 44, 48, 49, 55 and 56 were rejected under 35 USC 102(b) as anticipated by Patterson, et al. (US 2003/0050008 A1, hereinafter *Patterson*). Claims 3-9, 22-25, 39-42 and 50-54 were rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over *Patterson* taken in view of Kim, et al., (US 6,925,113, hereinafter *Kim*). Claims 17 and 34 were rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over *Patterson* taken in view of Hogberg, et al. (US 6,198,730, hereinafter *Hogberg*). Claims 15-16, 18-20, 32-33, 35-37, 45-47 and 57-59 were rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over *Patterson* taken in view of Xie, et al., (US 6,781,978, hereinafter *Xie*).

Rejections under 35 USC §102

Claims 1-2, 10-14, 21, 26-31, 38, 43, 44, 48, 49, 55 and 56 were rejected under 35 USC 102(b) as allegedly anticipated by *Patterson*.

Response

This rejection is traversed as follows. For a reference to anticipate an invention, all of the elements of that invention must be present in the reference. The test for anticipation under section 102 is whether each and every element as set forth in the claim is found, either expressly or inherently, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987); MPEP §2131. The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989); MPEP §2131.

Applicants claim:

> "... adjusting a [return link] data rate ... based on the change in the return link signal quality without changing the interference relationship among the plurality of terminals." (Claim 1; claims 21, 38 and 49 similar.)

Patterson does not show changing the return link signal quality without changing the interference relationship among the plurality of terminals when adjusting a return data rate. In particular there is no indication at all that *Patterson* uses interference as a criterion for data rate adjustments. Instead, at Standard Paragraph [0101] *Patterson* describes:

> "... The user terminals and gateway may use the MAC-layer protocol to negotiate the appropriate power level, modulation order, FEC coding rate, symbol rate, and time-slot assignments on the reverse link. The gateway allocates resources among user terminals based on the capacity requested by each user terminal, the available link capacity, and the waveforms that can be supported by the user terminal under the current link conditions. ..."

At Standard Paragraph [0103] *Patterson* describes:

> " Link availability may also vary depending on environmental conditions ... [and] may also vary depending on the class of user terminal in the service cell. ... For example, in clear sky conditions, the system may operate at its maximum rated bandwidth and data rates. ... A data communication link that is initially operated at its maximum rated data rate may reduce the rate in accordance with increasing path losses. ..."

The operation at different data rates is explained at Standard Paragraph [0104], in which *Patterson* describes:

> "... the data rates may vary from 128 Kbps to greater than 8 Mbps, depending on the class of user terminal involved. A typical Class I user terminal providing interactive data access may communicate data bursts at 512 Kbps per second. In heavy rain, the data rate may drop to 256 Kbps per second. ..."

The above fails to show changing the return link signal quality without changing the interference relationship when adjusting a return data rate. Instead, the description is one of accommodating link availability. *Patterson* negotiates power level, modulation order, FEC coding rate, symbol rate, and time-slot assignments on the reverse link, but fails to describe doing so "without changing the interference relationship among the plurality of terminals". Accordingly it is submitted that *Patterson* does not show each and every feature of the invention as presented in the independent claims.

Rejections of Claims 3-9, 22-25, 39-42 and 50-54 Under 35 U.S.C. §103

The Examiner rejected claims 3-9, 22-25, 39-42 and 50-54 under 35 U.S.C. §103(a) as being unpatentable over *Patterson* taken in view of *Kim*. *Patterson* is cited as showing identifying a change in return link signal quality at a gateway (return downlink) corresponding to a return link from a terminal (return uplink). A data rate is adjusted without changing an interference relationship among a plurality of terminals. *Kim* is cited as showing identification of a change in a signal-to-noise ratio from a return link. *Patterson* is relied upon, at Standard Paragraphs [0101] and [0103] to show adjustment without changing the interference relationship among the plurality of terminals.

Response

This rejection is traversed as follows. To establish a *prima facie* case of obviousness, the Examiner must establish: (1) some suggestion or motivation to modify the references exists; (2) a reasonable expectation of success; and (3) the prior art references teach or suggest all of the claim limitations. *Amgen, Inc. v. Chugai Pharm. Co.*, 18 USPQ2d 1016, 1023 (Fed. Cir. 1991); *In re Fine*, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988); *In re Wilson*, 165 USPQ 494, 496 (CCPA 1970).

A *prima facie* case of obviousness must also include a showing of the reasons why it would be obvious to modify the references to produce the present invention. *See Dystar Textilfarben GMBH v. C. H. Patrick*, 464 F.3d 1356 (Fed. Cir. 2006). The Examiner bears the initial burden to provide some convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings. *Id.* at 1366.

The references do not show changing the return link signal quality without changing the interference relationship among the plurality of terminals when adjusting a return data rate. In particular there is no indication at all that *Patterson* uses interference as a criterion for data rate adjustments. *Patterson* neither shows nor suggests changing the return link signal quality without changing the interference relationship among the plurality of terminals when adjusting a return data rate. To the contrary, *Patterson* describes the criteria in Standard Paragraph [0101] as including several factors without mentioning the interference relationship at all. Instead, the description is one of accommodating link availability.

Therefore, it is respectfully submitted that the Examiner has failed to present a *prima facie* case of obviousness. Obviousness is a question of law based on the following factual inquiries: 1) the scope and content of the prior art, 2) the differences between the prior art and the claims, 3) the level of ordinary skill in the art, and 4) objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966). The person of ordinary skill in the art is presumed to know all of the prior art in the field of the inventor's endeavor and prior art solutions for a common problem even if outside that field. *In re Nilssen*, 851 F.2d 1401, 7 USPQ2d 1500 (Fed. Cir. 1988) (That view accords with the plethora of this Court's precedent). For the purpose of combining references, the references need not explicitly suggest combining teachings, much less specific references. *Id.* There must be some reason, suggestion or motivation found in the prior art whereby a person of ordinary skill in the field of the invention would make the combination of references necessary to render a claim obvious. Such suggestion or motivation to combine prior art teachings can derive solely from the existence of the teaching, which one of ordinary skill in the art would be presumed to know, and the use of that teaching to solve the same or similar problem which it addresses. *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In the present case, there is no suggestion or motivation in the cited references to indicate changing the return link signal quality <u>without changing the interference relationship</u> among the plurality of terminals when adjusting a return data rate.

<u>Rejections of Claims 17 and 34 Under 35 U.S.C. §103</u>

The Examiner rejected claims 17 and 34 under 35 U.S.C. §103(a) as being unpatentable over *Patterson* taken in view of *Hogberg*. *Hogberg* is cited as showing a messaging time slot among a plurality of time slots and initiating a message within a particular messaging time slot.

Response

This rejection, as applied to the amended claims, is traversed. It is respectfully submitted that *Hogberg* fails to suggest the feature of initiating a message at a random point within a particular messaging time slot. Instead, referring to the sections cited by the Examiner, *Hogberg* describes a channel selection and time slot for multiuser slotted communications:

> "Channelizers 102, 103 are used to provide specific frequency/time slot channels (TDMA/FDMA) or frequency/code (CDMA/FDMA) channels. For example, ... "channelizing" ... 240 separate frequency channels ... using four time slots ... 64 codes (Walsh codes) ... distinct frequency bands ... four time slots with 64 codes in a single frequency band ... could provide four time slots with 64 codes with three or four distinct frequency bands. ..." (*Hogberg* at col. 3, line 64 - col. 4, line 12.)

This is a description of channelization. It requires a "hindsight" teaching of the present invention to implement the feature of initiating a message at a random point within a particular messaging time slot.

With reference to claims 17 and 34, these depend from claims 1 and 21, respectively. It is submitted that the combination of changing the return link signal quality without changing the interference relationship among the plurality of terminals when adjusting a return data rate must be taken into account based on the independent claims from which claims 17 and 34 depend. That feature in combination with the feature of initiating a message at a random point within a particular messaging time slot is neither shown nor suggested by the prior art of record.

The references shows no motivation for the combination presented by claims 17 and 34 (i.e., changing the return link signal quality without changing the interference relationship among the plurality of terminals when adjusting a return data rate, in combination with initiating a message at a random point). Under the test of *Dystar Textilfarben, supra.*, there is no line of reasoning in these references for such a combination. The Examiner bears the initial burden to provide some convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings. *Id.* at 1366. (*Accord, In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443, Fed. Cir. 1992.)

Accordingly, it is respectfully submitted that *Patterson*, *Kim* and *Hogberg* would be an improper combination to show the features of claims 17 and 34.

Regarding claims 18-20, 35-37, 46-47 and 59, applicants refer to the above arguments regarding claims 1 21, 38 and 49. Additionally, the changing of the return link signal quality without changing the interference relationship among the plurality of terminals when adjusting a return data rate in combination with the control of messaging time slots and duration of messages is further distinguished over the prior art of record.

Rejections of Claims 15, 16, 18-20, 32-33, 35-37, 45-47 and 57-59 Under 35 U.S.C. §103

The Examiner rejected claims 15, 16, 18-20, 32-33, 35-37, 45-47 and 57-59 under 35 U.S.C. §103(a) as being allegedly unpatentable over *Patterson* taken in view of *Xie*. *Xie* is cited as suspending a message if a current messaging time slot in a current time frame expires before the message is complete. The Office Action further cites *Xie* as teaching comparing a duration of a message to a length threshold, with the length threshold comprising a particular number of durations.

Response

This rejection, as applied to the amended claims, is traversed. The feature of the transceiver transmitting less than the whole message would still require a combination of the claimed features of changing the return link signal quality without changing the interference relationship among the plurality of terminals when adjusting a return data rate. In particular there is no prior art suggestion of such adjustment of a return data rate. Accordingly, there can be no suggestion that *partial transmissions* be adapted to such adjustment of a return data rate. There is no transmission of less than whole messages in combination with such adjustment because the combination does not include this type of adjustment without changing the interference relationship.

Claims 19, 36 and 47 present the feature of

> "... comparing a duration of the message at the current data rate to a length threshold ... comprising a particular number of durations." (Claim 19.)

Again, this must be construed in combination of the limitations of the claims according to the claim dependencies. There is no suggestion in *Xie* that slot duration thresholds be combined with a system which changes the return link signal quality without changing the interference

relationship among the plurality of terminals when adjusting a return data rate. Therefore there is no motivation for combining the references.

Dependent Claims

In addition to claims 17, 19, and 34, 36, 47 and 57 mentioned *supra*, the remaining dependent claims are allowable for the reasons given above, in combination with their particular features.

Specifically, the prior art of record fails to show or suggest changing the return link signal quality without changing the interference relationship among the plurality of terminals when adjusting a return data rate, while identifying and adjusting the transmitter and receiver at the same time (claim 2).

The prior art of record fails to show or suggest changing the return link signal quality without changing the interference relationship among the plurality of terminals when adjusting a return data rate, according to a signal to noise ratio (claims 3-6, 22-24, 39-41 and 50-52).

Regarding claims 7, 25, 42 and 53, these claims set forth adjusting the data rate by:

> "... reducing the data rate if the return link signal-to-noise ratio has fallen below a first threshold; and increasing the data rate if the return link signal-to-noise ratio has risen above a second threshold." (Claim 7)

This feature is neither shown nor suggesting in the prior art of record. Again, referring to Standard Paragraph [0103] *Patterson* describes:

> " Link availability may also vary depending on environmental conditions ... [and] may also vary depending on the class of user terminal in the service cell. ... For example, in clear sky conditions, the system may operate at its maximum rated bandwidth and data rates. ... A data communication link that is initially operated at its maximum rated data rate may reduce the rate in accordance with increasing path losses. ..."

The above neither shows nor suggests adjusting a data rate if the return link signal quality has fallen below a first threshold or has risen above a second threshold. Therefore, it is respectfully submitted that the Examiner has failed to present a *prima facie* case of obviousness with respect to claims 7, 25, 42 and 53. Further, there is no suggestion or motivation in the cited references to adjust a data rate in accordance with these first and second thresholds.

Regarding claims 8-13, 26-31, 43-50 and 54-56, these claims are unobvious under 35 U.S.C. §103(a). The prior art of record fails to show or suggest changing the return link signal quality without changing the interference relationship among the plurality of terminals when adjusting a return data rate, and adjusting transmission data rates in particular specified manners.

The prior art of record fails to show or suggest changing the return link signal quality without changing the interference relationship among the plurality of terminals when adjusting a return data rate, in combination with particular slotting methods (claims 14-20, 32-36, and 57-59).

The applicant has reviewed the references made of record and asserts that the claims are patentable over the references made of record.

CONCLUSION

In light of the amendments contained herein, Applicants submit that the application is in condition for allowance, for which early action is requested. If the Examiner believes the application is not in condition for allowance, Applicants respectfully request that the Examiner call the undersigned.

Please charge any fees or overpayments that may be due with this response to Deposit Account No. 17-0026.

Respectfully submitted,

Dated: March 22, 2007

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